

## **Appendix A**

### **Final Peer Review Comments on the Tamiami Trail Limited Reevaluation Report**

**Comment 1:**

**Each of the processes and functions included in the performance measures directly or as contributing functions should be monitored under a plan with significant geospatial dispersion.**

**Basis for Comment:**

It is the stated intent of the project to induce ecological changes to the vegetation, topography, and faunal use. It is also clear from the Limited Reevaluation Report (LRR) that the ability to predict these changes is somewhat limited. Similarly, it is clear from the LRR that other projects, such as degrading various levees, are also being contemplated and even planned. An effective data collection and management (monitoring) program with a good geospatial distribution of sample points and targeted functions, such as forage areas, fish populations, depth of organic material in sloughs, velocities, discharges related to rainfall and to the actual operational history, maintenance activity (culvert cleaning or repair), etc., would be extremely beneficial in validating this project and in substantiating the predicted direct, cumulative, and secondary effects of future actions under consideration. Monitoring and data collection should also address the Northwest Shark River Slough because the project will reduce water to that system by 45%.

**Significance – High:**

The project represents an opportunity to dramatically increase the understanding of how this particular ecosystem will respond to manipulations. That knowledge will directly affect the efficacy of all future decisions.

**Comment Cross-referencing:**

(2) Comment: *The project report assumes that there will be a sufficient amount of source water to raise the elevations in the L-29 Borrow Canal.* This comment links to consensus comment #2, especially with reference to degrading projects and how they may affect water sources.

**Recommendations for Resolution:**

To resolve these concerns, the report would need to be expanded to include:

- A strong, if only outlined, plan to assess the effects that the implementation of this action has on the affected area, with the understanding that the affected area extends beyond the study area and the assessment area. To be effective, the data collection and management (monitoring) plan should extend for several years (at least 5) beyond the completion of construction of the last cumulative element.

<b>Comment 2:</b>
<b>The project report assumes that there will be a sufficient amount of source water to raise the elevations in the L-29 Borrow Canal.</b>
<b>Basis for Comment:</b>
It is clear from the TT LRR that some of the structures are gravity operated and others are operated manually or by sensors. One structure is equipped with a pump for returning water to the canal above the structure. It is obvious that the levels in the L-29 Borrow Canal (L-29BC) are controlled by the cumulative effect of the operational schedules of the structures. It is also apparent that the waters have demands such as irrigation. The LRR does not address the operational schedule of these structures nor does it include a reference to a commitment by the operational entity. Questions of the prioritization of environmental need as it relates to other needs have arisen.
<b>Significance – High:</b>
The issue is considered of high significance because without source water to the L-29BC, the project cannot perform as designed.
<b>Comment Cross-referencing:</b>
(1) Comment: <i>Each of the processes and functions included in the performance measures directly or as contributing functions should be monitored under a plan with significant geospatial dispersion.</i> Water levels within all source compartments should be monitored.
<b>Recommendations for Resolution:</b>
<p>To resolve these concerns, the report would need to be expanded to include:</p> <ul style="list-style-type: none"> <li>• Structure operations summary. (Details would be lengthy and unwarranted.) A summary should be supplied for each structure contributing to the L-29BC water levels.</li> </ul>

**Comment 3:**

**The report does a poor job of describing the overall general pattern of water flow through the system and describing what areas will be impacted by different alternatives.**

**Basis for Comment:**

This comment is based on a need to better understand what we are trying to change and what area(s) will be impacted by different alternatives. The primary issue lies in the lack of clear explanation of the present and expected flow patterns. For example, Figure 1-2 indicates that the Shark River Slough lies fully east of L67. Other figures show a different configuration. In addition, canals and structures are labeled in various figures throughout the document; however, these figures do not give the reader the understanding of flow direction. In fact, no one figure contains all the structures, even within a given subarea. All levees, canals, and downstream roads could act to direct flow and should be shown on the figures. Thus, it is difficult to determine how the different bridge locations and sizes might impact this very important flow pattern. It is also not clear that all levees, roads, canals, and structures are labeled. How the flows from the bridge will positively affect the ecosystem 8 or 9 miles to the west of the bridge opening, and not necessarily downstream, is not readily apparent. There is a presumption that a bridge at either end (east or west) without a bridge at the other end, will result in rehydration of both ends of the project area. Much of this may be resolved by improving the description, figures, and maps of the current and expected flow patterns.

**Significance – High:**

The understanding of where the water comes from, where it will go, and how it is controlled is critical to the validity of the performance measures.

**Comment Cross-referencing:**

- (1) Comment: *Each of the processes and functions included in the performance measures directly or as contributing functions should be monitored under a plan with significant geospatial dispersion.* Post-construction monitoring will tell us how well the completed project achieves the flows that were predicted and desired.

**Recommendations for Resolution:**

To resolve these concerns, the report would need to be expanded to include:

- A flow vector map (or series) that shows the present direction of flow, particularly south of the road;
- A flow vector map that shows the expected flow directions, particularly for the four finalist alternatives;
- Improved figures that are consistent in their depiction of where the Shark River Slough lies and its primary flow pattern; and
- A series of maps that show all structures, culverts, levees, canals, and roads that might influence flow.

**Comment 4**

**There is considerable uncertainty about the origin of ridge and slough topography in the Everglades and how best to restore it in areas where it is degraded. This report does not address these uncertainties and does not contain persuasive justifications for the validity of the performance measures used for estimating the ecological benefits of restoring ridge and slough processes and ultimately ridge and slough topography.**

**Basis for Comment:**

The TT LRR has three main environmental planning objectives (page 4-6), one of which is to “Restore processes that produce and maintain ridge and slough topography.” The three performance measures selected for restoring ridge and slough processes are number of sloughs crossed by bridges (2.A), difference in average water velocity in the marsh and at the road (2.B), and flows into North East Shark River Slough (NESRS) via bridge (2.C).

The LRR fails to describe what exactly these ridge and slough processes are. Subsequently, how these performance measures will impact ridge and slough forming processes is not explained in either the LRR or in Appendix E. The underlying assumptions and the degree of uncertainty associated with these performance measures are never discussed and fully evaluated. Unfortunately, there is considerable uncertainty associated with each of them. What the likelihood is that the various alternatives considered will actually restore the ridge and slough topography is not addressed.

The first performance measure is the number of sloughs crossed by bridges (2.A), and it is justified as a performance measure because “Situating a bridge directly upstream of a degraded slough would maximize the potential for storm flow velocities to maintain sloughs by removing excess organic sediment ...” (page E-5). The justification assumes that ridge and slough formation and/or maintenance is a result of erosion and deposition. There is no compelling scientific evidence to support this assumption. In Appendix E, the whole rationale for this measure is given in just one line with not a single reference to a published or unpublished study in support of it. If scouring of organic matter from sloughs immediately downstream of the bridge does occur, this material would presumably be deposited in sloughs further south. This potential secondary effect is not discussed.

The second performance measure is the difference in average water velocity in the marsh (6,000 ft from bridge) and at the road (2.B). This use of difference in flow velocity is even more poorly justified as a performance measure of ridge and slough processes than is the number of sloughs crossed. In fact, as defined, this performance measure is the inverse of the previous one. The discussion of this measure states that high velocities at the bridge are bad because they cause scour that would result in the deposition of sediment fans (page E-6). “The ideal situation is for the ENP lands to have marsh like velocities from the bridge south” (page E-5). There is no explanation of how this performance measure is linked to ridge and slough processes. No published or unpublished studies are cited that justify the use of this performance measure. This is disturbing because this performance measure is one of the four used to screen the various project alternatives.

Should these two apparently conflicting measures be resolved, the extent of the effect of the first (high velocity) southward will be limited once the flows reach the second (low velocity) target, severely limiting the first's effect throughout the assessment area and calling into question the projected increase in habitat units.

The third performance measure (2.C) that is putatively related to ridge and slough processes is "flows into NESRS provided via bridge." Increased flows, and presumably duration of high water, in sloughs are expected to promote the growth of "open water vegetation." Although only a surrogate measure of potential changes in slough hydrology, this performance measure can be linked to ridge and slough processes using the existing literature on primary production and litter decomposition in the Everglades [see Givnish et al. (2007) and references therein; McVoy and Tarboton (2004) cited in Tarboton et al. (2004)]. Unfortunately, no effort was made to present the scientific foundation of this performance measure.

The expectation is high in the LRR that increasing discharge from the L29 canal into NESRS will eventually result in the restoration of its ridge and slough topography. Because of the uncertainties about the process of ridge and slough formation and how best to restore them, it is essential that post-project monitoring be done to document whether this actually occurred or not (i.e., see Consensus Comment #1).

In summary, one of the supposed ecological benefits of the proposed project, restoring ridge and slough processes, has been estimated on the basis of poorly justified and sometimes contradictory assumptions about how hydrology and ridge and slough forming processes are linked. Links between duration of flooding and flow velocity and ridge and slough processes have been postulated and justified in the published literature on the Everglades, but almost none of this literature is used or even cited. Only performance measures for which a reasonable link between hydrology and ridge and slough processes should be used. In the LRR and Appendix E, only one performance measure, 2.C, is linked to ridge and slough processes in any meaningful way.

#### **References:**

Givnish et al. (2007) Vegetation differentiation in the patterned landscape of the central Everglades: Importance of local and landscape drivers. *Global Ecology and Biogeography* 17:384–402.

Tarboton et al. (2004) Habitat Suitability Indices for Evaluating Water Management Alternatives, South Florida Water Management District, West Palm Beach, Florida.

#### **Significance – Medium:**

Although the three selected performance measures for the restoration of ridge and slough processes are poorly justified and to some extent contradictory, it is likely that increasing the volume of water discharged into NESRS will benefit the restoration of its ridge and slough topography to some extent. Thus, although the performance measures chosen are flawed and inadequately justified, they are sufficient for comparative purposes. It is unlikely that developing alternative performance measures of restoring ridge and slough processes would

alter the outcome of the selection process.

**Comment Cross-referencing:**

- (1) Comment: *Each of the processes and functions included in the performance measures directly or as contributing functions should be monitored under a plan with significant geospatial dispersion.* Because of the considerable uncertainties associated with performance measures of ridge and slough processes, it is essential to monitor the effect the project had on restoring ridge and slough topography.
- (12) Comment: *The report should briefly describe potential secondary impacts.* Secondary effects of downstream deposition of excess organics removed by increased water flow in sloughs are related to this comment.

**Recommendations for Resolution:**

To resolve these concerns, the report would need to be expanded:

- In Appendix E, there needs to be a discussion of current theories, and evidence for and against them, about processes that control ridge and slough development and maintenance with an emphasis on how these processes are influenced by duration and depth of flooding and by water velocity.
- A justification for performance measure 2.A is needed and it needs to be reconciled with performance measure 2.B. If this reconciliation cannot be done, performance measure 2.A should be deleted from the list of performance measures used in the evaluation of project alternatives.
- A more detailed justification for performance measure 2.B is needed that explains how it is linked to ridge and slough processes. Because high velocities at the bridge could locally scour away this topography, the possible negative impacts of constructing a bridge on ridge and slough topography should be considered.
- For performance measure 2.C, how it relates to ridge and slough processes needs to be discussed in more detail in light of the most recent theories on ridge and slough formation and maintenance. One possible approach that could be used is the habitat suitability indices as described in Tarboton et al. (2004).

**Comment 5**

**Within the context of evaluating the alternatives, clarification is needed regarding third-party costs related to the project.**

**Basis for Comment:**

The TT LRR provides a reasonably clear discussion of real estate acquisitions required for each alternative (Appendix F).

Six privately owned parcels have been identified as affected by the project and have been authorized for acquisition. The owners are:

- Florida Power and Light
- Radio One
- Jesse E. and Sally L. Kennon (Coopertown)
- Stan Carlin and M. A. Carlin (Gator Park)
- Helen V. Farace (Everglades Safari)
- Lincoln Financial Media.

Generally, acquisitions related to these parcels are either permanent easements or temporary construction easements. These real estate costs, most of which are to be borne by Department of Interior (DOI), have been addressed in the alternative evaluations. The real estate cost discussion also includes a separate category of costs listed as “damages.” Given the descriptions of the effects of flooding on the private properties, it appears likely in some cases that future business operations may be impacted. Consequently, the project cost to the private businesses may be more than the real estate value. For example, the revised site configurations may require modifications to the remaining site and structures. Acquisition of the entire parcel might be more practical. Understanding that real estate acquisition is a process of negotiation, more detail clarifying what has been included in the damages cost estimate category would be helpful.

Temporary construction easements are indicated for most of the business access points to the raised road section. The LRR implies that necessary permanent modifications to the access roadways will be performed as part of the construction contract. A clarification of this issue would be helpful.

The airboat ecotourism business associated with three of the businesses (Coopertown, Gator Park, and Everglades Safari) is estimated to bring in 300,000 visitors annually. The LRR acknowledges the possibility of some loss of business income to adjacent businesses during the construction period. These negative impacts can be mitigated with access management activities during construction. However, these third-party cost should be considered when evaluating alternatives.

**Significance – Medium:**

This comment is considered to be of medium significance because the implication is that these issues have been addressed. However, additional clarification in the report would be an improvement.



<b>Comment Cross-referencing:</b>
None.
<b>Recommendations for Resolution:</b>
<p>To resolve these concerns, the report would need to be expanded to include:</p> <ul style="list-style-type: none"><li>• Additional detail and clarification on third-party “damages” cost;</li><li>• Clarification that access modifications will be included in the construction scope;</li><li>• Clarification and confirmation that temporary business loss costs have been considered in evaluating alternatives.</li></ul>

**Comment 6**

**The report organization and presentation need improvement. The report includes numerous inconsistencies, lacks some references, and some figures are unclear.**

**Basis for Comment:**

The TT LRR is poorly organized, introduces concepts in a haphazard manner, is supported by unclear graphics, and contains a large number of inconsistencies. The result is that the reader is left to piece the details of the plan together on his own. This comment is based in the premise that the plan should be understandable by readers with only a rudimentary knowledge of the Everglades and the existing drainage system. An incomplete and brief series of examples is included:

1. Figure ES-1 on page ii refers to S-333 and S-334 in the caption but these are not shown in the figure. The caption also refers to the study area, which also is not in the figure. Later, the reader learns that the study and project area are not the same as the assessment area, which is also different from the area used by the spreadsheet model. The Shark River Slough is located in the graphic to the West of the Project Area, setting the stage for misinterpretations of references to NE or NW Shark River Slough in subsequent reading. The interested, but as yet uninformed, reader does not know where S-333 and S-334 are and probably does not even know what they are. The informed reader, who knows what they are, may not know which side is upstream and how they operate.
2. Consistency: Table 4-3, page 4-21 includes a column titled "Average Annual Cost per HU." Later (page 4-40, section 4.5.3.1.), HU is equated to "output." Subsequently, Tables 4-10 and 4-11 list average annual cost per output. The values in the latter two tables are not the same as the values in the first table. The change in nomenclature and inconsistency in values creates confusion. Compounding the confusion is the fact that the actual habitat units remain the same among the tables.
3. The use of literature values in lieu of study values may be acceptable, but the value of relying on the literature is reduced when the constituents are so vastly different as those in Tables 3-1 and 3-2.
4. The Annex, and most documents dealing with compliance with various laws, often state that the plan is in compliance or that the stated concern is insignificant. Simply stating that there is no adverse impact is not a proof. Citations would be beneficial. See Annex A, sections 2.2.4 and 2.3.2.2 as examples.
5. Fig 4-2 does not have a legend and the labels are unclear. The resolution of Fig 4-3 makes it unintelligible.

**Significance – Medium:**

It is apparent that correcting these problems will not change the outcome of the decision. It is valuable because correcting these now will save countless hours in later years when other readers, not having the benefit of the supporting documents or the existing staff, will struggle to

determine the intentions of the LRR.

**Comment Cross-referencing:**

(1) Comment: *Each of the processes and functions included in the performance measures directly or as contributing functions should be monitored under a plan with significant geospatial dispersion.* Monitoring will be eased if it is clear what is to be monitored.

(2) Comment: *The project report assumes that there will be a sufficient amount of source water to raise the elevations in the L-29 Borrow Canal.* A more clear presentation would have made the missing operational element apparent from the beginning.

(3) Comment: *The report does a poor job of describing the overall general pattern of water flow through the system and describing what areas will be impacted by different alternatives.* The review team still does not have a good presentation of overall flow vectors.

(4, 7, 8, 9, 10, 12) A clear presentation or appropriate citations could obviate the comments entirely.

**Recommendations for Resolution:**

To resolve these concerns, the report would need to be expanded:

- Conduct an editorial and quality control review consistent with standards of editing provided to other publications. Prepare the document with the standards of English Composition as a guide. Lay foundations, build, connect, and conclude.

**Comment 7**

**The two performance measures developed to estimate the restoration of “Fish and Wildlife Resources” are of little relevance for predicting the impacts of a Tamiami Trail Modification project on North East Shark River Slough fish or wildlife populations.**

**Basis for Comment:**

There are long-standing concerns about the decline of wildlife in the Everglades, especially wading birds. The two performance measures used to estimate wildlife benefits from various project alternatives do not deal with any species or group of species that are of concern. The only wildlife benefits assessed are an assumed decrease in road kill for unspecified animals (4.A) by constructing a bridge or bridges and an assumed increase in unspecified animals moving into North East Shark River Slough (NESRS) under the bridge from WCA-3 (4.B). These performance measures are functionally circular and are not directly related to fish and wildlife populations.

Because there are 261 animal deaths per mile of road per year (E-11), it is assumed that constructing a one mile bridge will automatically reduce animal deaths by this amount. (This assumes that animals will never use the bridge for any purpose.) The data presented do not indicate whether animals killed were moving into or out of NESRS. If these animals include a variety of avian species, the assessment may be completely erroneous. The assessment does not address the predicted increase in faunal populations that are presumed to occur when the project is completed. If this prediction is true, then the number of animals killed on the remaining roadway may increase. In any case, the number of animals killed annually is insignificant compared to the total number of animals found in NESRS and WCA-3. As a measure of the estimated benefits of various alternative projects on animal populations, this performance measure is trivial, is possibly erroneous, and is based on a circular argument.

Performance measure 4.B, potential connectivity of WCA-3B marsh and NESRS, is also simply a function of the total length of bridges that will replace roadway. No evidence is presented that animal populations in NESRS have been adversely affected by the building of the Tamiami Trail, especially due to the road reducing the number of animals that historically migrated from what is now WCA-3A into NESRS. The report ignores that animals can still migrate into NESRS from the east, west and south. Increased migration from NESRS into WCA-3A as a result of inserting a bridge or bridges along the Tamiami Trail is not considered. Consequently, the potential spread of exotic species like pythons from Everglades National Park into WCA-3 is ignored.

The performance measure of connectivity, 4.B, is based on the potential future project of degrading the L-29 Levee. It is noted, however, in Appendix E and ignored in the rest of the report that “...this marsh to marsh connectivity would also require degrading the L-29 Levee that encloses WCA-3 impoundments. Degrading the L-29 levee is not authorized under the Modified Water Deliveries (MWD) legislation.” (E-12). As far as we are aware, degrading the L-29 Levee is also not contemplated as part of the Comprehensive Everglades Restoration Plan (CERP). In short, this is an indefensible performance measure because it is based on another project that is never likely to happen. Nevertheless, this performance measure was used as one

of four screening measures.

In short, the two performance measures used to estimate the benefits to animal populations in NESRS of various TTM alternatives are trivial (4.A), possibly erroneous (4.A), based on circular arguments (4.A and 4.B), and are unjustifiable (4.B). Although it is likely that some animal species will benefit from inserting a bridge or bridges along Tamiami Trail, neither the animal species that would benefit nor how much populations of these species would benefit are addressed in the report.

#### **Significance – Medium:**

Both performance measures are simply functions of bridge length. Consequently, they are inherently of little use in evaluating project alternatives. In addition, performance measure 4.A provides at best only a trivial estimate of animal benefits and 4.B is based on an assumption about the future degradation of the L-29 levee. Although the benefits to animal populations were estimated poorly, this does not affect the justification for the project or invalidate the overall evaluation of the alternatives. In reality, some animal species would benefit from most of the alternatives proposed and this benefit would probably be to some extent a function of the total length of the bridge(s).

#### **Comment Cross-referencing:**

- (1) Comment: *Each of the processes and functions included in the performance measures directly or as contributing functions should be monitored under a plan with significant geospatial dispersion.* Because the actual benefits to fish and wildlife of the TTM project alternatives were not estimated, such benefits will need to be demonstrated by post-project monitoring as proposed in Comment #1.

#### **Recommendations for Resolution:**

To resolve these concerns, the report would need to be modified:

- Drop the current performance measures, 4.A and 4.B;
- Develop more suitable performance measures that focus on species or groups of species of concern such as wading birds, alligators, deer, etc.

**Comment 8:**

**The introduction needs a better description of how the models were used. Specifically, it is unclear if the spreadsheet model was used only to compare alternatives or if it is being used in a predictive capacity.**

**Basis for Comment:**

The report states that “The spreadsheet model does a very good job of interpreting the general trends that increased inflows would produce within NESRS as measured at the NESRS2 monitoring gage. However, stage predictions should not be considered absolutes from this analysis. This analysis is a simplification of a very complicated system developed for a [sic] comparison purposes among all of the different alternatives.” It is not clear from this statement if the model was used to make predictions of water levels resulting from the project that occur in other sections of the document. Thus, the stated intended purpose may have been at odds with the apparent use.

**Significance – Medium:**

A clearer understanding of how the model was used and the level of reliability of the results would help to determine the reliability of the alternatives.

**Comment Cross-referencing:**

- (1) Comment: *Each of the processes and functions included in the performance measures directly or as contributing functions should be monitored under a plan with significant geospatial dispersion.* Post-construction monitoring will help to determine the level of accuracy provided by the model.

**Recommendations for Resolution:**

To resolve these concerns, the report would need to be expanded to include:

- A brief summary of the model (perhaps in the introduction or at the beginning of Chapter 4), describing its use(s) in evaluating the alternatives, and the reliability of the evaluations based on the model results.

**Comment 9:**

**The report sometimes does not make clear that hydrologic and other indirect measures are used as surrogates for ecological processes and communities.**

**Basis for Comment:**

Of the ten performance measures (E-3) used in the evaluation of alternatives, five are hydrological measures (water depth, duration of flooding, water velocity, etc.) that are assumed to be linked to ridge and slough processes (2.B and 2.C) or to restoring vegetation (deep marsh) communities (3.A, 3.B, and 3.C). These assumed linkages are in some cases problematic (see Comment # 4). In fact, with the arguable exceptions of performance measures 4.A and 4.B (see Comment # 7), there are no direct ecological performance measures.

In the report, instead of using the designator of a performance measure from Appendix D, e.g., 3.B, in some tables, e.g., Tables 4-6 and 4-13, “ridge and slough process” and “slough vegetation suitability” are used as headings. This is misleading because there are no direct performance measures of either, such as a predicted change in the area of deep marsh vegetation.

Because most of the estimated ecological benefits are based on assumed relationships between hydrology or some other indirect measure and ecological processes or communities, these benefits are far from certain. Consequently, post-project monitoring is needed to be sure that such benefits actually accrued from the project.

**Significance – Low:**

This is a minor editorial problem in the report.

**Comment Cross-referencing:**

- (1) Comment: *Each of the processes and functions included in the performance measures directly or as contributing functions should be monitored under a plan with significant geospatial dispersion.*
- (4) Comment: *There is considerable uncertainty about the origin of ridge and slough topography in the Everglades and how best to restore it in areas where it is degraded. This report does not address these uncertainties and does not contain persuasive justifications for the validity of the performance measures used for estimating the ecological benefits of restoring ridge and slough processes and ultimately ridge and slough topography.*
- (7) Comment: *The two performance measures developed to estimate the restoration of “Fish and Wildlife Resources” are of little relevance for predicting the impacts of a Tamiami Trail Modification project on North East Shark River Slough fish or wildlife populations. Both comments discuss the problems of using hydrologic and other measures as surrogates for ecological processes and communities.*

<b>Recommendations for Resolution:</b>
<p>To resolve these concerns, the report would need to be expanded to include:</p> <ul style="list-style-type: none"><li>• The designator of a performance measure, or a brief description of it, should be used consistently in the report as in Table 4-5.</li></ul>



**Comment 10:**

**The potential for releasing mercury as a result of the project construction should be addressed.**

**Basis for Comment:**

Mercury contamination has been for many years a concern in the Everglades, but is not mentioned in the report. Although it can reasonably be assumed that replacing one mile of roadway with a bridge will not alter the amount, if any, of mercury entering the Everglades from Tamiami Trail, it is possible that in situ mercury may be released because of disturbances to soils caused by construction activities. This possibility is not addressed in the report.

**Significance – Low:**

It is unlikely that the proposed Tamiami Trail Modification will have long-term consequences for mercury inputs into Everglades National Park. Including a discussion of the potential for mercury release due to construction activities is primarily needed to reassure fishermen and others that the potential for a short-term spike in mercury has been considered in the TT LRR.

**Comment Cross-referencing:**

None.

**Recommendations for Resolution:**

To resolve these concerns, the report would need to be expanded to include:

- A short discussion of the potential for releasing *in situ* mercury in the project footprint and immediately downstream from it due to construction activities.

**Comment 11:**

**Within the context of evaluating alternatives, the road user costs (RUCs) should be included in the cost estimate.**

**Basis for Comment:**

There is no indication within the discussion of costs in the TT LRR that Road User Costs (RUCs) have been considered. While RUCs do not directly affect project funding requirements, in transportation project planning it is recommended practice to include RUCs in comparing alternative design approaches.

The calculation of RUCs provides information enabling the designer to make better informed decisions in regards to staging, allowable work hours, project delivery method, and the actual design itself. Therefore, before a scheme is finalized, traffic volumes should be evaluated on a 7 day 24 hour basis. Staging should be evaluated for potential queues. Often, queues can be avoided by simply allowing lane closures only during non-peak hours. If the proposed design alternative reveals substantial RUCs, an alternative scheme that reduces these costs may be a better choice.

More specifically, planners and designers should consider RUCs as a factor in decision making with regard to:

- Evaluation of Design Alternatives
- Selection of Traffic Control Plan (TCP) Phasing
- Selection of Project Delivery Options.

The Alternative Plans considered in the LRR are similar in scope. All include a 1-mile bridge structure. Given the similarity, RUCs may not be a determining factor in alternative selection. Nevertheless, good practice suggests that a basic analysis be performed. It is reasonable to assume that differences in stage elevations among alternatives may require differences in road section mitigation and consequently different work zone lengths. The LRR should confirm that RUCs have been considered and were not a determining factor in alternative selection.

**Significance – Low:**

It does not appear likely that RUCs would influence alternative selection or affect required project funding; however, to be complete it should be addressed.

**Comment Cross-referencing:**

None.

**Recommendations for Resolution:**

To resolve these concerns, the report would need to be expanded to include:

- A confirmation that a basic RUC analysis has been performed for each alternative and that RUC is not a determining factor in alternative selection.

**Comment 12:**

**The report should briefly describe potential secondary impacts.**

**Basis for Comment:**

Section 5.22 on page 5-51 contains one paragraph on secondary impacts, which refers the reader to discussions “throughout Section 5” for details. Section 5 contains a very lengthy and complete discussion of cumulative impacts and discussions of direct and cumulative impacts to listed species, but secondary impacts are obscured. The TT LRR defines secondary impacts well, but fails to mention that these may be either inside or outside the study area or the Everglades National Park. Secondary impacts may be either positive or negative. It is recognized that neither cumulative nor secondary impacts can be quantified and may only be described in somewhat speculative terms. The value, in particular in this instance, is in defining parameters that the team or other interested parties may choose to evaluate during and after project implementation (see Comment 1), which could significantly increase the knowledge and understanding of either the Everglades or the secondarily impacted study site. Examples discussed as potential secondary impacts include:

1. East Coast reefs. If less water is discharged to the East Coast of Florida, presumably with a lowered load, local nearshore waters may experience an improvement.
2. The North West Shark River Slough (SWSRS), west of the L67, will have the hydraulic load reduced by 55%. This may be a primary impact and it may be addressed elsewhere, but since it is outside the assessment area, discussing it as a secondary impact may be warranted.
3. The southern Everglades will experience an alteration in water flow unless it can be shown that evapotranspiration and groundwater recharge will account for all the additional water south of the assessment area boundary. The additional water could be addressed as an offsite secondary impact. Increased inputs of fresh water into Florida Bay, if any, could be an important secondary benefit of the project.
4. The southern Everglades supports fauna of interest, in particular the American Crocodile. The habitat of these species may or may not be altered, even if only shifted geospatially, by the alteration of the geographical location or intensity of the salinity gradient between the Everglades and the marine fringe.
5. Geospatial shifts in nesting and foraging habitats of wading, diving, and predatory birds may occur.
6. The Northeast Shark River Slough (NESRS) tree islands may be affected by post project changes in water depths. Levels can be expected to be higher in the NESRS and lower in the NWSRS.
7. WCA-3A and WCA-3B can be expected to have altered hydrology, which may constitute a secondary effect.

<b>Significance – Low:</b>	
The significance to this particular plan is low, but a more thorough examination and discussion of potential secondary effects is very desirable. The significance to future plans, similar plans, work being conducted by others, and the monitoring recommended in Comment 1 is high.	
<b>Comment Cross-referencing:</b>	
(1)	Comment: <i>Each of the processes and functions included in the performance measures directly or as contributing functions should be monitored under a plan with significant geospatial dispersion.</i> A well designed monitoring program could add detail to the level of both positive and negative secondary affects.
<b>Recommendations for Resolution:</b>	
To resolve these concerns, the report would need to be expanded to include:	
<ul style="list-style-type: none"> <li>• A complete, if speculative, list of expected or potential positive and negative secondary affects, the hypothesized causative agent, and a general description of the potential outcome.</li> </ul>	